

TABLE OF CONTENTS

Introduction	9
Lesson 1:	
What Is Astronomy?	13
Welcome	14
The Night Sky	15
Think About This	15
Stars and Planets	15
Clocks, Calendars, and Seasons	16
Think About This	17
Navigation	17
Gravity	18
Think About This	18
Our Solar System	19
Activity 1.1: Create Your Own Mnemonic	19
Astronomers and Astronauts.....	20
Satellites	21
Activity 1.2: Build a Model Solar System.....	22
What Do You Remember?.....	24
Lesson 2:	
The Sun	25
The Star of Stars	26
Activity 2.1: Understanding Distance and Size..	27
92,956,050.....	27
Don't Stare!	28
Activity 2.2: Use a Magnifying Glass to Focus Heat	28
Think About This	29
Activity 2.3: Give a Speech to Teach Others	
About the Sun	29
Revolve and Rotate.....	30
Activity 2.4a: Take a Walk Around the Sun-	
Revolving	30
Think About This	31
Activity 2.4b: Take a Walk Around the Sun-	
Rotating	31
Solar Flares, Auroras, and Sunspots	32
Think About This.....	33
The Color of God's Love	34
Think About This	34
Think About This	36
Solar Eclipse	37
Activity 2.5: Make a Solar Eclipse.....	39
Activity 2.6: Pinhole Eclipse Viewing Box	40
A Spacecraft to Study the Sun - SOHO.....	41
Who Named the Sun	42
What Do You Remember?.....	42

Lesson 3:

Mercury	43
The Planet Closest to the Sun.....	44
Rotation and Revolution	45
Think About This.....	46
Features of the Planet Mercury.....	46
Think About This.....	47
Activity 3.1: Making Craters	47
A Trip Across the Sun	48
Who Named Mercury?.....	48
How to Find Mercury in the Sky.....	48
Spacecraft to Mercury.....	49
Math It.....	49
Think About This.....	50
Activity 3.2: Make a Model of Mercury.....	51
What Do You Remember?.....	52

Lesson 5:

Earth	65
Perfect Design by a Perfect Designer.....	66
Perfect Distance.....	66
Perfect Mass	67
Perfect Rotation	68
Think About This.....	69
Perfect Atmosphere	69
Perfect Tilt	71
Activity 5.1a: Understanding the Seasons	71
Activity 5.1b: Understanding the Seasons.....	74
Perfect Land	76
Perfect Magnetosphere	77
Activity 5.2: Make a Compass	79
Think About This.....	80
Who Named Earth.....	80
Spacecraft for Studying Earth	80
Activity 5.3: Create an Advertisement for Earth..	81
What Do You Remember?.....	82

Lesson 4:

Venus	53
Think About This.....	55
Activity 4.1: Make Some <i>Lava</i>	55
Too Much Atmosphere.....	56
Rotation and Revolution	57
Not a Twin	57
Think About This	58
The Phases of Venus	58
Who Named Venus	59
Think About This	59
Finding Venus in the Sky.....	60
Spacecraft to Venus	60
Understanding Radar	60
Activity 4.2: Learn How Radar is Used.....	62
What Do You Remember?.....	64

Lesson 6:

The Moon	83
The Moon	84
Activity 6.1: Understanding How the Moon Reflects Light	85
The Moon's Phases.....	85
Phases of the Moon as Seen from Earth.....	86
Activity 6.2a: Understanding Phases of the Moon.	87
Activity 6.2b: Record the Phases of the Moon.	88
Think About This	88
Lunar Eclipse	89
Lunar Atmosphere.....	90
The Moon's Gravity	91
Think About This	92
Activity 6.3: Make a Telescope.....	92
Who Named the Moon.....	94
Spacecraft to the Moon	94
Think About This	96
What Do You Remember?.....	96

Lesson 7:

Mars	97
Mars.....	98
Activity 7.1: Build Olympus Mons.....	99
Martian Gravity	100
Martian Atmosphere	100
God's Gift of Magnetism.....	102
Think About This.....	102
Moons.....	102
Martian Orbit	103
Martian Rotation	104
Moving to Mars	105
Activity 7.2: Designing a Mars Community ..	106
Mars Surface	107
Liquid Water on Mars?.....	107
Finding Mars in the Sky.....	108
Who Named Mars	108
Spacecraft to Mars.....	108
Think About This.....	109
What Do You Remember?.....	110

Lesson 8:

Space Rocks	111
Comets.....	112
Think About This.....	113
The Coma	114
A Comet's Orbit.....	114
Activity 8.1: Watch a Meteor Shower	115
Famous Comets.....	116
How Comets Get Their Official Names.....	117
Meteoroids, Meteors, Meteorites	117
Asteroids	118
Asteroid Belt	120
Who Names Asteroids.....	122
Spacecraft.....	123
Activity 8.2: Understanding Distances in Our Solar System	123
Think About This.....	124
What Do You Remember?.....	124

Lesson 9:

Jupiter	125
Protective Mother.....	126
Going to Jupiter	126
Little Sun	127
Stormy Skies.....	127
Activity 9.1: Make a Hurricane Tube.....	128
Jupiter's Rings	128
Rotation and Revolution	129
Many Moons.....	129
Finding Jupiter in the Night Sky	131
Who Named Jupiter.....	131
Spacecraft Galileo.....	131
Activity 9.2: Create a Newspaper	133
What Do You Remember?.....	134

Lesson 10:

Saturn	135
Twins	137
Activity 10.1: Draw a Venn Diagram.....	137
Ring System	138
Think About This.....	139
Fast Rotation.....	140
Who Named Saturn	140
Finding Saturn in the Night Sky	140
Cassini Mission	140
Saturn's Moons.....	141
Activity 10.2: Launch a Rocket	142
What Do You Remember?.....	144

Lesson 11:

Uranus	145
Eureka!	147
Think About This	147
Activity 11.1: Create a Play About the Discovery of Uranus	148
Orbit and Rotation	150
Moons	150
Titania	151
Oberon	151
Cordelia and Ophelia	151
Miranda	152
Ariel	152
Umbriel	152
Who Named Uranus	152
Activity 11.2: Make Clouds	153
What Do You Remember?	154

Lesson 12:

Neptune	155
Neptune	156
Activity 12.1: Make Ice Cream!	157
Eureka!	158
Who Named Neptune	158
Orbit and Rotation	159
Atmosphere	159
Think About This	160
Moons	160
Activity 12.2: Create a Cartoon of Neptune	161
What Do You Remember?	162

Lesson 13:

Kuiper Belt and the Dwarf Planets	163
God's Creativity	164
What is a Planet?	164
The Kuiper Belt	165
Math It	166
Dwarf Planets	166
Activity 13.1: What Do Dwarf Planets Look Like?	167
Ceres	168
Pluto	169
Strange Orbit	170
Pluto's Moons	170
Eris	171

Makemake	171
Haumea	172
Haumea's Moons	172
Dwarf Planets in Review	172
Activity 13.2: The Earth vs. Dwarf Planets	174
What Do You Remember?	174

Lesson 14:

Stars, Galaxies, and Space Travel	175
Star Light, Star Bright	176
Activity 14.1: Understanding the Night Sky	177
Black Holes	179
Activity 14.2: Understanding the Expanding Universe	179
Supernovas	180
Variable Stars	181
Categorizing Stars: Hot or Cold	182
Activity 14.3: Make a Mnemonic	182
Categorizing Stars: Bright or Dim	182
Categorizing Stars: Big or Small	183
Activity 14.4: Make an Astrometer	184
Light Years	184
Galaxies	185
Constellations	186
Constellations and Astronomy	188
Activity 14.5: Locating Constellations	189
Let's Go to Space	189
Sputnik Sensation	190
Space Race	190
The 1960s	191
The International Space Station	192
Building the International Space Station	195
Becoming a NASA Astronaut	196
Seeing the International Space Station	197
Activity 14.6: Let's Visit the Planets!	197
Activity 14.7: Build a Model Space Station	198
What Do You Remember?	198

Appendix	199
Supply List	200
Answer Key	203
Index	211
Photo and Illustration Credits	214